

What is claimed is:

1           1.       A system for ordering and prioritizing multiple health disorders for  
2 automated remote patient care, comprising:

3               a database maintaining information for an individual patient, comprising  
4 organizing a plurality of monitoring sets in a database, and measures relating to  
5 patient information previously recorded and derived on a substantially continuous  
6 basis into a monitoring set in the database;

7               a server retrieving and processing a plurality of the monitoring sets,  
8 comprising:

9                       a comparison module determining patient status changes by  
10 comparing at least one stored measure from each of the monitoring sets to at least  
11 one other stored measure from another of the monitoring sets with both stored  
12 measures relating to the same type of patient information; and

13                    an analysis module ordering each patient status change in temporal  
14 sequence from least recent to most recent and categorizing a plurality of health  
15 disorder candidates by quantifiable physiological measures of pathophysiologies  
16 indicative of each respective health disorder and evaluating the health disorder  
17 candidates, and identifying the health disorder candidate having the  
18 pathophysiology substantially corresponding to the patient status changes which  
19 occurred substantially least recently as the index disorder.

1           2.       A system according to Claim 1, further comprising:

2               an adjustable time window defined for the patient information; and

3               the comparison module comparing the at least one stored measure to at  
4 least one other stored measure which was previously recorded within the  
5 adjustable time window.

1           3.       A system according to Claim 2, wherein the adjustable time  
2 window further comprises an upper bound relating to at least one of the health  
3 disorder candidates.

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1           4.       A system according to Claim 1, further comprising:

2 the analysis module identifying the health disorder candidates having  
3 pathophysiologies substantially corresponding to the patient status changes which  
4 occurred recently.

1 5. A system according to Claim 1, further comprising:  
2 a symptomatic event ordering set comprising a plurality of previously  
3 related quantifiable physiological measures for one of the health disorder  
4 candidates; and  
5 the analysis module evaluating each quantifiable physiological measure in  
6 the symptomatic event ordering set responsive to a change in at least one of the  
7 quantifiable physiological measures.

1 6. A system according to Claim 1, further comprising:  
2 a database module periodically receiving one of the monitoring set for an  
3 individual patient, at least one of the measures in the monitoring set having been  
4 previously recorded by at least one of an implantable medical device and an  
5 external medical device and storing the received monitoring set in the database as  
6 part of a patient care record for the individual patient.

1 7. A system according to Claim 1, further comprising:  
2 a sequencing module prioritizing the patient status changes in accordance  
3 with a pre-determined ordering; and  
4 the analysis module comparing the patient status changes having a higher  
5 priority which occurred least recently before the patient status changes having a  
6 lower priority.

1 8. A system according to Claim 1, further comprising:  
2 the database storing a plurality of quality of life measures;  
3 the comparison module determining a patient subjective changes by  
4 comparing at least one quality of life measure to at least one other quality of life  
5 measure; and  
6 the analysis module ordering each patient subjective change in temporal  
7 sequence from least recent to most recent.

1           9.     A system according to Claim 8, further comprising:  
2           the sequencing module prioritizing the patient status changes in  
3 accordance with a pre-determined ordering based on a substantially least recent  
4 patient subjective change.

1           10.    A system according to Claim 8, further comprising:  
2           the analysis module correlating the identified health disorder candidate  
3 with each patient subjective change.

1           11.    A system according to Claim 1, further comprising:  
2           a set of stickiness indicators for corresponding types of patient  
3 information, each stickiness indicator corresponding to a temporal limit related to  
4 patient diagnosis or treatment;  
5           the comparison module comparing a time span occurring between the  
6 patient status changes for each stored measure to the stickiness indicator relating  
7 to the same type of patient information as the stored measure being compared;  
8 and  
9           the analysis module determining a revised program of patient diagnosis or  
10 treatment responsive to the patient status changes occurring subsequent to a time  
11 span exceeding the stickiness indicator.

1           12.    A system according to Claim 1, further comprising:  
2           a database module retrieving the plurality of monitoring sets from the  
3 database as one of a patient care record for an individual patient, a peer group,  
4 and a overall patient population.

1           13.    A system according to Claim 1, further comprising:  
2           a reference baseline comprising measures stored in the database, each  
3 measure relating to patient information stored during an initial time period and  
4 comprise either medical device measures or derived measures calculable  
5 therefrom; and

6 a database module obtaining at least one of the measures and one other of  
7 the stored measures from the reference baseline.

1 14. A system according to Claim 1, wherein the plurality of health  
2 disorders comprise congestive heart failure, myocardial ischemia, respiratory  
3 insufficiency, and atrial fibrillation, the system further comprising:

4 an indicator threshold corresponding to a quantifiable physiological  
5 measure of a pathophysiology indicative of one of congestive heart failure,  
6 myocardial ischemia, respiratory insufficiency, and atrial fibrillation; and

7 the analysis module testing each patient status change against an indicator  
8 threshold corresponding to the same type of patient information as the stored  
9 measures which were compared.

1 15. A method for ordering and prioritizing multiple health disorders  
2 for automated remote patient care, comprising:

3 maintaining information for an individual patient, comprising:

4 organizing a plurality of monitoring sets in a database;

5 measures relating to patient information previously recorded and  
6 derived on a substantially continuous basis into a monitoring set in the database;

7 determining patient status changes by retrieving and comparing at least  
8 one stored measure from each of the monitoring sets to at least one other stored  
9 measure from another of the monitoring sets with both stored measures relating to  
10 the same type of patient information, comprising:

11 ordering each patient status change in temporal sequence from  
12 least recent to most recent;

13 categorizing a plurality of health disorder candidates by  
14 quantifiable physiological measures of pathophysiologies indicative of each  
15 respective health disorder; and

16 evaluating the health disorder candidates and identifying the health  
17 disorder candidate having the pathophysiology substantially corresponding to the  
18 patient status changes which occurred substantially least recently as the index

19 disorder.

1           16.     A method according to Claim 15, the operation of determining a  
2 patient status change further comprising:  
3           defining an adjustable time window for the patient information; and  
4           comparing the at least one stored measure to at least one other stored  
5 measure which was previously recorded within the adjustable time window.

1           17.     A method according to Claim 16, wherein the adjustable time  
2 window further comprises an upper bound relating to at least one of the health  
3 disorder candidates.

1           18.     A method according to Claim 15, further comprising:  
2           identifying the health disorder candidates having pathophysiologies  
3 substantially corresponding to the patient status changes which occurred recently.

1           19.     A method according to Claim 15, further comprising:  
2           categorizing a plurality of previously related quantifiable physiological  
3 measures for one of the health disorder candidates into a symptomatic event  
4 ordering set; and  
5           evaluating each quantifiable physiological measure in the symptomatic  
6 event ordering set responsive to a change in at least one of the quantifiable  
7 physiological measures.

1           20.     A method according to Claim 15, further comprising:  
2           periodically receiving one of the monitoring sets for an individual patient,  
3 at least one of the stored measures in the monitoring set having been previously  
4 recorded by at least one of an implantable medical device and an external medical  
5 device; and  
6           storing the received monitoring set in the database as part of a patient care  
7 record for the individual patient.

1           21.     A method according to Claim 15, further comprising:  
2           prioritizing the patient status changes in accordance with a pre-determined  
3 ordering; and

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4 comparing the patient status changes having a higher priority which  
5 occurred least recently before the patient status changes having a lower priority.

1 22. A method according to Claim 15, further comprising:  
2 storing a plurality of quality of life measures;  
3 determining patient subjective changes by comparing at least one quality  
4 of life measure to at least one other quality of life measure; and  
5 ordering each patient subjective change in temporal sequence from least  
6 recent to most recent.

1 23. A method according to Claim 22, further comprising:  
2 prioritizing the patient status changes in accordance with a pre-determined  
3 ordering based on a substantially least recent patient subjective change.

1 24. A method according to Claim 22, further comprising:  
2 correlating the identified health disorder candidate with each patient  
3 subjective change.

1 25. A method according to Claim 15, further comprising:  
2 defining a set of stickiness indicators for corresponding types of patient  
3 information, each stickiness indicator corresponding to a temporal limit related to  
4 patient diagnosis or treatment;  
5 comparing a time span occurring between the patient status changes for  
6 each stored measure to the stickiness indicator relating to the same type of patient  
7 information as the stored measure being compared; and  
8 determining a revised program of patient diagnosis or treatment  
9 responsive to the patient status changes occurring subsequent to a time span  
10 exceeding the stickiness indicator.

1 26. A method according to Claim 15, further comprising:  
2 retrieving the plurality of monitoring sets from the database as one of a  
3 patient care record for an individual patient, a peer group, and a overall patient  
4 population.

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1           27.     A method according to Claim 15, further comprising:  
2           storing a reference baseline comprising measures into the database, which  
3 each measure relating to patient information stored during an initial time period  
4 and comprise either medical device measures or derived measures calculable  
5 therefrom; and  
6           obtaining at least one of the measures and one other of the measures from  
7 the reference baseline.

1           28.     A method according to Claim 15, wherein the plurality of health  
2 disorders comprise congestive heart failure, myocardial ischemia, respiratory  
3 insufficiency, and atrial fibrillation, the method further comprising:  
4           defining an indicator threshold corresponding to a quantifiable  
5 physiological measure of a pathophysiology indicative of one of congestive heart  
6 failure, myocardial ischemia, respiratory insufficiency, and atrial fibrillation; and  
7           testing each patient status change against an indicator threshold  
8 corresponding to the same type of patient information as the stored measures  
9 which were compared.

1           29.     A computer-readable storage medium holding code for ordering  
2 and prioritizing multiple health disorders for automated remote patient care,  
3 comprising:  
4           code for operatively maintaining information for an individual patient,  
5 comprising organizing a plurality of monitoring sets in a database, and measures  
6 relating to patient information previously recorded and derived on a substantially  
7 continuous basis into a monitoring set in the database;  
8           code for operatively determining patient status changes by retrieving and  
9 comparing at least one stored measure from each of the monitoring sets to at least  
10 one other stored measure from another of the monitoring sets with both stored  
11 measures relating to the same type of patient information;  
12           code for operatively ordering each patient status change in temporal  
13 sequence from least recent to most recent;

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14           code for operatively categorizing a plurality of health disorder candidates  
15 by quantifiable physiological measures of pathophysiologies indicative of each  
16 respective health disorder; and  
17           code for operatively evaluating the health disorder candidates and  
18 identifying the health disorder candidates having the pathophysiology  
19 substantially corresponding to the patient status changes which occurred  
20 substantially least recently as the index disorder.

1           30.    A storage medium according to Claim 29, the operation of  
2 determining a patient status change further comprising:  
3           code for operatively defining an adjustable time window for the patient  
4 information; and  
5           code for operatively comparing the at least one stored measure to at least  
6 one other stored measure which was previously recorded within the adjustable  
7 time window.

1           31.    A storage medium according to Claim 29, further comprising:  
2           code for operatively identifying the health disorder candidates having  
3 pathophysiologies substantially corresponding to the patient status changes which  
4 occurred recently.

1           32.    A storage medium according to Claim 29, further comprising:  
2           code for operatively categorizing a plurality of related quantifiable  
3 physiological measures for one such health disorder into a symptomatic event  
4 ordering set; and  
5           code for operatively evaluating each such quantifiable physiological  
6 measure in the symptomatic event ordering set responsive to a change in at least  
7 one such quantifiable physiological measure.

1           33.    A storage medium according to Claim 29, further comprising:  
2           code for operatively periodically receiving a monitoring set for an  
3 individual patient, at least one stored measure in the monitoring set having been  
4 recorded by at least one of a medical device adapted to be implanted in an

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5 individual patient and an external medical device proximal to the individual  
6 patient when the device measures are recorded; and  
7 code for operatively storing the received monitoring set in the database as  
8 part of a patient care record for the individual patient.

1 34. A storage medium according to Claim 29, further comprising:  
2 code for operatively prioritizing the patient status changes in accordance  
3 with a pre-determined ordering; and  
4 code for operatively comparing the patient status changes having a higher  
5 priority which occurred least recently before the patient status changes having a  
6 lower priority.

1 35. A storage medium according to Claim 29, further comprising:  
2 code for operatively storing a plurality of quality of life measures;  
3 code for operatively determining patient subjective changes by comparing  
4 at least one quality of life measure to at least one other quality of life measure;  
5 and  
6 code for operatively ordering each patient subjective change in temporal  
7 sequence from least recent to most recent.

1 36. A storage medium according to Claim 35, further comprising:  
2 code for operatively prioritizing the patient status changes in accordance  
3 with a pre-determined ordering based on a substantially least recent patient  
4 subjective change.

1 37. A storage medium according to Claim 35, further comprising:  
2 code for operatively correlating the identified health disorder candidate  
3 with each patient subjective change.

1 38. A storage medium according to Claim 29, further comprising:  
2 code for operatively defining a set of stickiness indicators for  
3 corresponding types of patient information, each stickiness indicator  
4 corresponding to a temporal limit related to patient diagnosis or treatment;

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5           code for operatively comparing a time span occurring between the patient  
6 status changes for each stored measure to the stickiness indicator relating to the  
7 same type of patient information as the stored measure being compared; and  
8           code for operatively determining a revised program of patient diagnosis or  
9 treatment responsive to the patient status changes occurring subsequent to a time  
10 span exceeding the stickiness indicator.

1           39.    A storage medium according to Claim 29, further comprising:  
2           code for operatively retrieving the plurality of monitoring sets from the  
3 database as one of a patient care record for an individual patient, a peer group,  
4 and a overall patient population.

1           40.    A storage medium according to Claim 29, further comprising:  
2           code for operatively storing a reference baseline comprising measures into  
3 the database, each measure relating to patient information stored during an initial  
4 time period and comprise either medical device measures or derived measures  
5 calculable therefrom; and  
6           code for operatively obtaining at least one of the measures and one other  
7 of the measures from the reference baseline.